Structure of the ADA COHR Logical Data Model

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A general health service logical data model was developed from previous work on the American Dental Association (ADA) concept model for the Computer-based Oral Health Record (COHR). In this concept model, structure (data) was tied to process (activity) by first creating a general process model of health care delivery and subsequently identifying those data components required to support these activities. Fundamental clinical activities consist of examination (data acquisition), diagnosis (data analysis), treatment planning (action planned), and treatment recording (action performed). Supporting activities include registration of all persons involved in care delivery, the scheduling of the care encounter, etc. The concept model presented individual data views which correspond to these discrete clinical and supporting activities. The IDEF methodology was employed for both the concept and logical models.[1]

The first step in preparing the logical model was to combine the discrete data views of the concept model. The data content was normalized and the IDEF data modeling rules were rigorously applied. The model was compared to other IDEF health care models to ensure the needed content was represented. As in the concept model, the key entity is PERSON.

Attributes from the concept model were redistributed among the resulting entities. Additional attributes were added to the model based on reviewer comment, content of other models in health care and input from subject matter experts in medicine, dentistry and ancillary services. The fully attributed model including its terms, definitions and legal values are continuously being reviewed and rationalized to be generally representative of all of health care. Codes and nomenclatures capable of being represented in the model currently include the standard codes for dentistry along with SNOMED, ICD, CPT, and DSM. The model is under review by the ANSI Accredited Standards Committee MD156 Work Group 4 and the Association's Advisory Committee on Dental Electronic Nomenclature, Indexing and Classification.

This model has been nominated as ANSI Spec 1000 for a standardized computer-based patient record. The data structure of the logical model is generally applicable across the entire health service spectrum because it was developed as a general model of the health care process. With this structure it can be used as a blueprint for a clinical repository serving all facets of health service, and all health care disciplines, professions and specialties. Furthermore, the model has linkages available to other data components supporting a provider organization, e.g. credentials and privileges, materials management, facility management, etc. This logical data model may therefore serve as a standardized clinical core of an enterprise-wide data architecture for any health care organization.

[1] IDEF is an acronym of an acronym, standing for Integrated Computer Aided Manufacturing DEFinition Language.

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